The wine is placed in A and ferment supplied directly thereto or by the filters being impregnated therewith, or with grape cake, must, asbestos, or pumice or charcoal to favor fermentation.

The wine being placed in A, cocks, b, b, are left open for a while, so that the pressure in B becomes equal to that in A; subsequently the cocks, b, b, are so manipulated that a regulated excess of pressure causes the wine to pass through the filters, D; a ~~filter~~ refrigerating device may be used in connexion with D.

All air is removed at the beginning of the operation by leaving the cocks, communicating with the atmosphere, open for a time.

(Wine).

See the German patent to the same, 56,999, which operates in much the same way.

A.D. 1891. JAN. 16. Nº 852. (1 SHEET)

KÖNIG'S PROVISIONAL SPECIFICATION.

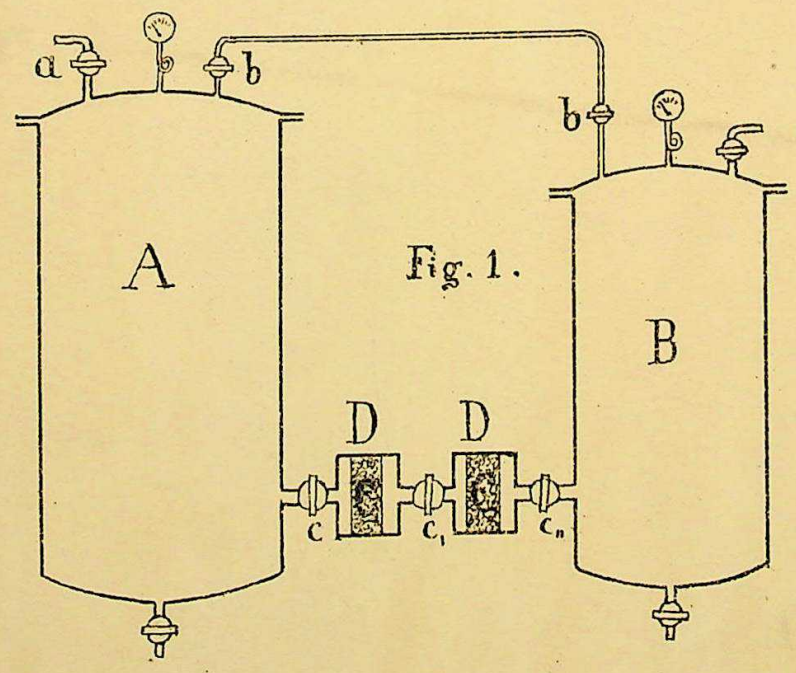

Fig. 1.

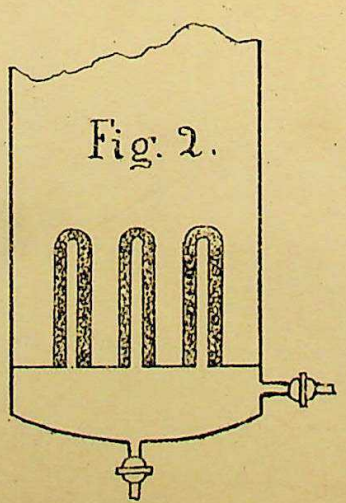

Fig. 2.

[This Drawing is a reproduction of the Original on a reduced scale]

426/15

Fermentation increased by charcoal or subst 1891

N° 852 A.D. 1891

RECORDED

Date of Application, 16th Jan., 1891
Complete Specification Left, 1st Oct., 1891—Accepted, 7th Nov., 1891

PROVISIONAL SPECIFICATION.

Process and Apparatus for the Manufacture of Champagne and other Beverages Charged with Carbonic Acid.

I, Dr. FRANZ KÖNIG of Turin, Italy, Professor of Chemistry, do hereby declare the nature of this invention to be as follows :—

For the production of champagne and other sparkling wines by fermentation in large receptacles two methods have heretofore been employed. In the older, French, method the ferment which is slowly deposited during the last portion of the fermentation, is simply drawn off by a cock. With the second process, known as Reihlen's process, the ferment is kept back by means of finely divided vegetable fibre.

The first process requires a long time, and with both processes a previous clarification of the wine is necessary, while at the same time it is not at all certain that ferment germs do not remain in the wine so as to act detrimentally thereon.

My present invention has for its object to remove the whole of the ferment, and other detrimental constituents, by a much more reliable method, namely by filtration.

This operation must however be carried out in an essentially different manner from that which has been hitherto employed for non-sparkling beer and wine.

It must not be effected too rapidly and by means of light voluminous filters, as is the case with beer and wine, as otherwise the sparkling quality and the aroma would suffer, but the filtration must take place comparatively slowly, preferably simultaneously with the fermentation and under pressure and corresponding counter pressure.

By means of this process the duration of the manufacture of sparkling wines is considerably shortened, as the operations of the clearing and the fining are done away with, and cloudy fermenting liquids can be utilised.

The fermentation can be accelerated by the addition of good ferment or good grape cake or must, or by the use of asbestos, pumice stone, charcoal or other similar substances.

These latter have the property of absorbing from must and other nitrogenous liquids, a large proportion of the nitrogen, and thus become effective breeding beds for ferment organisms.

If therefore the said materials are left in contact with fermenting must and the like, they absorb nitrogen and ferments, and act as powerful exciters of fermentation.

For carrying out the process, apparatus can be employed which I will proceed to describe with reference to the accompanying drawing.

The wine to be treated is introduced, with or without the addition of the said ferments, into the receiver A Fig. 1 through the pipe with the cock *a*.

The vessel A being filled, and any remaining air therein, as also that in the vessel B, being driven out by means of carbonic acid, all the cocks are closed with the exception of *b*. Between the recipients A and B is a third smaller vessel D or several such, two being shewn on the drawing, which vessels contain filters C. These are of porous but sufficiently dense material so as to effect the purposes of the filtration in the most perfect possible manner.

The filters may have any desired form, such as a disc, cylinder, cone, or hollow cylinder in which the filtration is effected from the outer side inwards.

[*Price* 8*d.*]

As filtering medium may serve any neutral porous, fibrous, spongy or pulverulent material, such as asbestos, cotton wool, pumice stone, paper pulp, burnt clay, in the form of porous earthenware pipes &c.

The position of the filters is also optional, so that the filtration takes place either upwards, downwards or sideways. The filtering device might also be arranged directly in the recipient A, as indicated at Fig. 2; but a separate filtering vessel is preferable.

At the commencement of the fermenting process the pressure rises equally in both vessels A and B, the cocks *b* being open.

When it has attained a certain degree, the cocks *b* are closed and the cocks $c\ c_1\ c_{11}$ of the filters are opened, so that with the increasing pressure in A a continual uniformly advancing filtration through the filters C will take place.

The resulting beverage which collects in B and can be drawn off thence directly into bottles, is brilliantly clear, effervesces perfectly, and is very durable.

In order to accelerate the fermentation, the recipient A can be heated either externally or by means of internal pipes or coils, while the recipient B can be cooled in an analogous manner. By such cooling the excess of cream of tartar is also separated, so as not to be deposited afterwards in the bottles.

This separation of the tartar can also be effected in a separate highly refrigerated vessel through which the wine is passed before entering the vessel B.

The recipient B can also be placed at a lower level, as for instance in a cellar, while the recipient A is placed in a higher locality.

If in this case the difference of height is sufficient, the cocks *b* can be left open during both the fermentation and the filtration, as in that case the pressure of the liquid column will be sufficient for the filtration. The pressure gauges applied to the recipients must however not indicate too great a difference of pressure.

It will be evident that the carbonic acid produced by fermentation can be in part replaced by artificial carbonic acid pumped in; in certain cases also, the filtration can be accelerated by means of a force pump situated between the recipient A and the filters.

This process is applicable not only to the manufacture of champagne but also for all other kinds of sparkling or effervescing fermented liquids.

Dated this 16th day of January 1891.

ABEL & IMRAY,
Agents for the Applicant.

COMPLETE SPECIFICATION.

Process and Apparatus for the Manufacture of Champagne and other Beverages Charged with Carbonic Acid.

I Dr. Franz König of Turin, Italy, Professor of Chemistry, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

For the production of champagne and other sparkling wines by fermentation in large receptacles two methods have heretofore been employed. In the older, French, method the ferment which is slowly deposited during the last portion of the fermentation, is simply drawn off by a cock. With the second process, known as Reihlan's process, the ferment is kept back by means of finely divided vegetable fibre.

The first process requires a long time, and with both processes a previous clarification of the wine is necessary, while at the same time it is not at all certain that ferment germs do not remain in the wine so as to act detrimentally thereon.

My present invention has for its object to remove the whole of the ferment,

and other detrimental constituents, by a much more reliable method, namely by filtration.

This operation must however be carried out in an essentially different manner from that which has been hitherto employed for non-sparkling beer and wine.

It must not be effected too rapidly and by means of light voluminous filters, as is the case with beer and wine, as otherwise the sparkling quality and the aroma would suffer, but the filtration must take place comparatively slowly, preferably simultaneously with the fermentation and under pressure and corresponding counter pressure.

By means of this process the duration of the manufacture of sparkling wines is considerably shortened, as the operations of the clearing and the fining are done away with, and cloudy fermenting liquids can be utilised.

The fermentation can be accelerated by the addition of good ferment or good grape cake or must, or by the use of asbestos, pumice stone, charcoal or other similar substances.

These latter have the property of absorbing from must and other nitrogenous liquids, a large proportion of the nitrogen, and thus become effective breeding beds for ferment organisms.

If therefore the said materials are left in contact with fermenting must and the like, they absorb nitrogen and ferments, and act as powerful exciters of fermentation.

For carrying out the process, apparatus can be employed which I will proceed to describe with reference to the drawing accompanying my Provisional Specification.

The wine to be treated is introduced, with or without the addition of the said ferments, into the receiver A Fig. 1 through the pipe with the cock *a*.

The vessel A being filled, and any remaining air therein, as also that in the vessel B, being driven out by means of carbonic acid, all the cocks are closed with the exception of *b*.

Between the recipients A and B is a third smaller vessel D or several such, two being shewn on the drawing, which vessels contain filters C. These are of porous but sufficiently dense material so as to effect the purposes of the filtration in the most perfect possible manner.

The filters may have any desired form, such as a disc, cylinder, cone, or hollow cylinder in which the filtration is effected from the outer side inwards.

As filtering medium may serve any neutral porous, fibrous, spongy or pulverulent material, such as asbestos, cotton wool, pumice stone, paper pulp, burnt clay, in the form of porous earthenware pipes &c.

The position of the filters is also optional, so that the filtration takes place either upwards, downwards or sideways. The filtering device might also be arranged directly in the recipient A, as indicated at Fig. 2; but a separate filtering vessel is preferable.

At the commencement of the fermenting process the pressure rises equally in both vessels A and B, the cocks *b* being open.

When it has attained a certain degree, the cocks *b* are closed and the cocks c c_1 c_{11} of the filters are opened, so that with the increasing pressure in A a continual uniformly advancing filtration through the filters C will take place.

The resulting beverage which collects in B and can be drawn off thence directly into bottles, is brilliantly clear, effervesces perfectly, and is very durable.

In order to accelerate the fermentation, the recipient A can be heated either externally or by means of internal pipes or coils, while the recipient B can be cooled in an analogous manner. By such cooling the excess of cream of tartar is also separated, so as not to be deposited afterwards in the bottles.

This separation of the tartar can also be effected in a separate highly refrigerated vessel through which the wine is passed before entering the vessel B.

The recipient B can also be placed at a lower level, as for instance in a cellar, while the recipient A is placed in a higher locality.

If in this case the difference of height is sufficient, the cocks *b* can be left open, during both the fermentation and the filtration, as in that case the pressure of the liquid column will be sufficient for the filtration. The pressure gauges applied to the recipients must however not indicate too great a difference of pressure.

It will be evident that the carbonic acid produced by fermentation can be in part replaced by artificial carbonic acid pumped in ; in certain cases also, the filtration can be accelerated by means of a force pump situated between the recipient A and the filters.

This process is applicable not only to the manufacture of champagne but also for all other kinds of sparkling or effervescing fermented liquids.

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed, I declare that what I claim is :

1. The process for preparing champagne and other beverages charged with carbonic acid, wherein the fermenting or other liquid under treatment with or without the addition of ferments is made to pass through one or more filters contained either in the fermenting vessel itself or in receptacles situated between the fermenting vessel and the receptacle from which the liquid is filled into bottles, substantially as described.

2. In filters such as are referred to in the preceding claim, the method of impregnating the filtering medium with nitrogenous matters and ferment fungus, in order to make them serve as ferments in the process referred to, substantially as described.

3. Apparatus for carrying out the process referred to in the first claim, consisting of the combination of one or more fermenting vessels A with one or more filtering devices C C contained either in the vessels A, or in special receptacles D D, from which the filtered liquid passes into vessels B for discharging into bottles, the vessel A being constructed either with or without internal heating pipes, while the vessel B is provided, if necessary, with means for cooling, and the filtration being, if necessary, accelerated by the use of a force pump.

Dated this 30th day of September 1891.

ABEL & IMRAY,
Agents for the Applicant.

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